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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/506,204	02/17/2000	Trung T. Doan	3025.1US (95-1003.1)	6685

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EXAMINER
QUACH, TUAN N

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/506,204	Applicant(s) DOAN, TRUNG T.	
	Examiner Tuan Quach	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *February 26, 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 February 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *14* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saran et al. taken with Kobayashi et al.

Saran et al. show the aluminum contact in contact holes in an insulating layer. See Fig.s 1B and 2B, column 2 line 2 to column 3 line 20. Note that for product-by-process claims, it is the patentability of the product claims which must be determined. Thus Saran et al. lacks the recitation of the advantages of inclusion of the alloy, the recitation of the homogeneous ally, and the various alloying elements.

Kobayashi et al. teach the use of electrode containing Al as the primary component and the inclusion of additional component where formation of homogeneous Al alloy, e.g., Cu, Mg, Zn, Ag, Ni is also taught. The advantage of improved heat resistance and the prevention of metal diffusion into the semiconductor material is also delineated. See column 1 line 10 to column 3 line 42, column 4 lines 31-63.

It would have been obvious to one skilled in the art at the time the invention was made in practicing the Saran et al. invention to have included the aluminum material a desired alloy as taught by Kobayashi et al. wherein homogeneous aluminum alloys can be obtained. Any alternative alloy materials not recited otherwise would have been obvious or alternatively, official notice is given regarding such use to obtain the desired

alloy having improved heat resistance and reduced diffusion given the teachings of the references as delineated.

Regarding the recitation concerning "void-free" feature in the preamble of claim 1, line 1, or in claim 23 last line claim 39 last line, to the extent such recitation could be argued to impart any patentability to the claims, such would have been met or otherwise obvious, absent evidence to the contrary, as shown in Saran et al., Figs. 1B and 2B, column 2 line 2 to column 3 line 20.

The non-deformed aluminum bridge is clearly met by Saran et al. as shown in Fig. 2B wherein no deformation is shown. In addition, such is met as shown in Saran et al., column 1 line 50 to column 2 line 3. The direct contact would have been obvious given that barrier while may be included is not required, e.g., Saran et al., column 3 line 8-10.

Applicant's arguments filed February 26, 2002 have been fully considered but they are not persuasive.

Applicant argues that all the claimed limitations must be met. Nonetheless, although the process is recited, applicant ultimately claims a product. See, e.g., claim 1 line 1-3. It is well-settled that for product-by process claims it the patentability of the product, and not that of the process which must be determined. It remains apparent that the product features do not distinguish over that shown in the prior art. In particular, the void free aluminum filled contact holes are clearly shown in the prior artKobayashi et al. teach the use of electrode containing Al as the primary component and the inclusion of additional component where formation of homogeneous Al alloy,

e.g., Cu, Mg, Zn, Ag, Ni is also taught. Furthermore, the non-deformed aluminum bridge is clearly met by Saran et al. as shown in Fig. 2B wherein no deformation is shown. In addition, such is met as shown in Saran et al., column 1 line 50 to column 2 line 3. The direct contact would have been obvious given that barrier while may be included is not required, e.g., Saran et al., column 3 line 8-10. Furthermore, to the extent that such is deposited by sputtering, such corresponds to well know processing in the art as evidenced by Saran et al., column 3 lines 19-20. As the product in the product-by-by process is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. In re Thorpe, 227 USPQ 964, 966. As delineated above, applicant ultimately claims a product which is the same or similar or obvious over that of the prior art and applicant has failed to show any unobvious difference between applicant's product and that of the prior art. In re Marosi, 218 USPQ 289, 292 (Fed. Cir. 1983).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number is 703-308-1096. The examiner can normally be reached on M-F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Tuan Quach
Primary Examiner